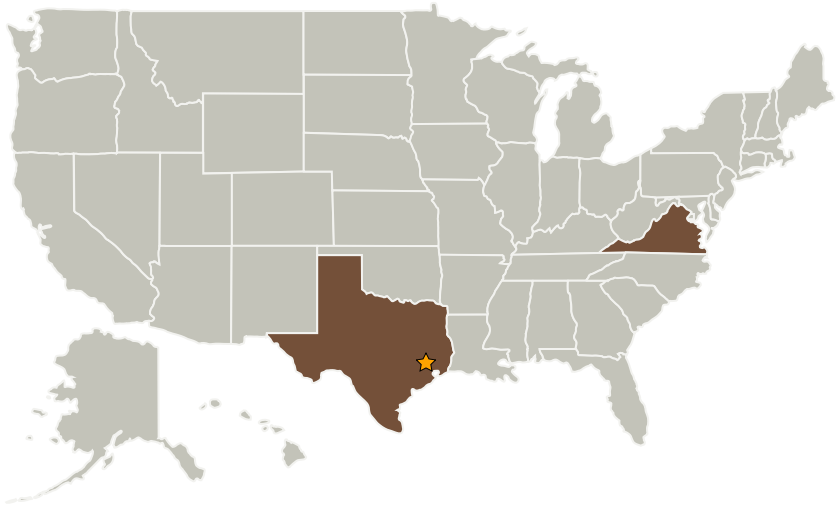
Modular Power System Configured with Standard Product Hybrid DC-DC Converters, Phase II

Completed Technology Project (2005 - 2007)

Project Introduction

VPT proposes an innovative concept whereby complex NASA space power electronic systems can be configured using a small number of qualified hybrid DC-DC converter and EMI filter modules. This significantly reduces nonrecurring engineering in the design of space power converters. In the SBIR Phase I, VPT configured a space station power converter using a VPT standard product hybrid DC-DC converter and EMI filter. The system met all Space Station power quality requirements including the very challenging input impedance requirement. Two engineering units were developed and went through a full battery of space station power quality tests NASA-JSC. The approach also demonstrated a significant size and weight savings. The phase II workplan includes: (a) selection of three NASA power system applications across different branches for development of detailed power requirements, (b) design and build engineering units of each of these systems using a modular approach of VPT hybrid converters and subject each to engineering tests, (c) make necessary changes to selected VPT standard product hybrid converters in order to meet NASA requirements for design, parts selection, element evaluation, screening, radiation hardness, and qualification, (d) build a qualification unit for one system and subject it to formal qualification tests.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
VPT, Inc.	Supporting Organization	Industry	Blacksburg, Virginia

Primary U.S. Work Locations	
Texas	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
  - TX03.3 Power Management and Distribution
    - TX03.3.3 Electrical Power Conversion and Regulation